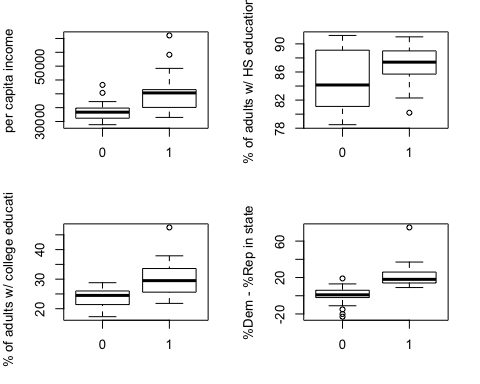
Test C review R output

library(Stat2Data)  
data(Election08)  
head(Election08)

## State Abr Income HS BA Dem.Rep ObamaWin  
## 1 Alabama AL 32404 80.4 21.4 -1 0  
## 2 Alaska AK 40352 90.5 26.0 -11 0  
## 3 Arizona AZ 33029 83.5 25.3 0 0  
## 4 Arkansas AR 30060 81.1 19.3 12 0  
## 5 California CA 41571 80.2 29.5 19 1  
## 6 Colorado CO 41042 88.9 35.0 11 1

par(mfrow=c(2,2)); par(mar=c(4,4,2,2))  
boxplot(Income~ObamaWin,data=Election08, ylab="per capita income")  
boxplot(HS~ObamaWin,data=Election08, ylab="% of adults w/ HS education")  
boxplot(BA~ObamaWin,data=Election08, ylab="% of adults w/ college education")  
boxplot(Dem.Rep~ObamaWin,data=Election08, ylab="%Dem - %Rep in state")



favstats(Income~ObamaWin,data=Election08)

## ObamaWin min Q1 median Q3 max mean sd n missing  
## 1 0 28845 31191 33368.5 34823.5 43226 33801.50 3462.176 22 0  
## 2 1 31474 35086 40322.0 41512.0 61092 40554.72 6627.527 29 0

favstats(HS~ObamaWin,data=Election08)

## ObamaWin min Q1 median Q3 max mean sd n missing  
## 1 0 78.5 81.125 84.15 89.075 91.2 84.85455 4.377184 22 0  
## 2 1 80.2 85.700 87.40 89.000 91.0 86.86897 2.701733 29 0

favstats(BA~ObamaWin,data=Election08)

## ObamaWin min Q1 median Q3 max mean sd n missing  
## 1 0 17.3 21.5 24.5 25.925 28.8 23.82273 3.254438 22 0  
## 2 1 21.8 25.6 29.5 33.600 47.5 29.66897 5.506561 29 0

favstats(Dem.Rep~ObamaWin,data=Election08)

## ObamaWin min Q1 median Q3 max mean sd n missing  
## 1 0 -23 -1.75 1 5.75 19 0.4090909 10.46836 22 0  
## 2 1 9 14.00 18 26.00 75 21.3448276 13.01449 29 0

cor(Election08[,3:6])

## Income HS BA Dem.Rep  
## Income 1.0000000 0.29074115 0.8276107 0.59587400  
## HS 0.2907412 1.00000000 0.4383784 -0.03188233  
## BA 0.8276107 0.43837840 1.0000000 0.58496075  
## Dem.Rep 0.5958740 -0.03188233 0.5849607 1.00000000

model1 <- glm(ObamaWin ~ Income, family=binomial, data=Election08); summary(model1)

##   
## Call:  
## glm(formula = ObamaWin ~ Income, family = binomial, data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -2.3433 -0.7976 0.1329 0.6866 1.8124   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -1.243e+01 3.752e+00 -3.311 0.000928 \*\*\*  
## Income 3.494e-04 1.050e-04 3.328 0.000874 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.737 on 50 degrees of freedom  
## Residual deviance: 48.867 on 49 degrees of freedom  
## AIC: 52.867  
##   
## Number of Fisher Scoring iterations: 5

model2 <- glm(ObamaWin ~ HS, family=binomial, data=Election08); summary(model2)

##   
## Call:  
## glm(formula = ObamaWin ~ HS, family = binomial, data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.6812 -1.0634 0.8347 0.9884 1.4616   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -13.63514 7.20057 -1.894 0.0583 .  
## HS 0.16195 0.08381 1.932 0.0533 .  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.737 on 50 degrees of freedom  
## Residual deviance: 65.741 on 49 degrees of freedom  
## AIC: 69.741  
##   
## Number of Fisher Scoring iterations: 4

model3 <- glm(ObamaWin ~ BA, family=binomial, data=Election08); summary(model3)

##   
## Call:  
## glm(formula = ObamaWin ~ BA, family = binomial, data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.7130 -0.8697 0.2436 0.7314 1.7952   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -9.4667 2.9656 -3.192 0.00141 \*\*  
## BA 0.3706 0.1143 3.243 0.00118 \*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.737 on 50 degrees of freedom  
## Residual deviance: 49.689 on 49 degrees of freedom  
## AIC: 53.689  
##   
## Number of Fisher Scoring iterations: 5

model4 <- glm(ObamaWin ~ Dem.Rep, family=binomial, data=Election08); summary(model4)

##   
## Call:  
## glm(formula = ObamaWin ~ Dem.Rep, family = binomial, data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -2.53512 -0.26777 0.02084 0.37143 1.32292   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -3.4931 1.2290 -2.842 0.004480 \*\*   
## Dem.Rep 0.3508 0.1054 3.328 0.000875 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.737 on 50 degrees of freedom  
## Residual deviance: 27.167 on 49 degrees of freedom  
## AIC: 31.167  
##   
## Number of Fisher Scoring iterations: 7

confint.default(model1)

## 2.5 % 97.5 %  
## (Intercept) -1.977923e+01 -5.0709788744  
## Income 1.436599e-04 0.0005551904

Election08$IncomeTh <- Election08$Income/1000  
model5 <- glm(ObamaWin ~ IncomeTh, family=binomial, data=Election08); summary(model5)

##   
## Call:  
## glm(formula = ObamaWin ~ IncomeTh, family = binomial, data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -2.3433 -0.7976 0.1329 0.6866 1.8124   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -12.4251 3.7522 -3.311 0.000928 \*\*\*  
## IncomeTh 0.3494 0.1050 3.328 0.000874 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.737 on 50 degrees of freedom  
## Residual deviance: 48.867 on 49 degrees of freedom  
## AIC: 52.867  
##   
## Number of Fisher Scoring iterations: 5

model6 <- glm(ObamaWin ~ Income+HS+BA+Dem.Rep, family=binomial, data=Election08); summary(model6)

## Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

##   
## Call:  
## glm(formula = ObamaWin ~ Income + HS + BA + Dem.Rep, family = binomial,   
## data = Election08)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.74554 -0.07763 0.00001 0.00903 1.93819   
##   
## Coefficients:  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -5.361e+01 3.773e+01 -1.421 0.1554   
## Income 6.445e-04 4.828e-04 1.335 0.1819   
## HS 1.514e-01 3.894e-01 0.389 0.6973   
## BA 5.214e-01 3.947e-01 1.321 0.1865   
## Dem.Rep 6.353e-01 2.726e-01 2.331 0.0198 \*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 69.7372 on 50 degrees of freedom  
## Residual deviance: 9.7252 on 46 degrees of freedom  
## AIC: 19.725  
##   
## Number of Fisher Scoring iterations: 10